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AUTHOR Munby, Hugh
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ABSTRACT

An alternative is suggested to conventional and propositional ways of thinking about curriculum matters. Curriculum theory is conventionally presented as statements of propositional knowledge even though the significance of tacit, non-propositional knowledge has been recognized in philosophy. It is suggested that attention be paid to how teachers think about the curriculum and its components, particularly how teachers "construct" curriculum content in professional practice. The argument presented is that the ways teachers have named and framed issues about curriculum content are important. It is demonstrated that this form of the teachers' curriculum knowledge is quite different from ideas about the propositional nature of a teacher's subject matter knowledge . Focusing on metaphor, the paper begins with a review of recent explorations into metaphor and the curriculum. It is shown that this work can be extended by examining the metaphorical language that teachers use in talking about their work. Several examples are given showing that the metaphorical language provides insights into how the teachers have named and framed issues about curriculum content. It is assumed that the metaphors represent something of the teachers' practical curriculum knowledge. (JD)

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METAPHORICAL EXPRESSIONS OF TEACHERS' PRACTICAL CURRICULUM KNOWLEDGE[1]

Hugh Munby[2]
Faculty of Education
Queen's University
Kingston, Ontario

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Introduction

This paper is intended as an invitation to curriculum theorists to consider an alternative to the more conventional and propositional ways of thinking about curriculum matters. Curriculum theory, it is assumed, is conventionally presented as statements of propositional knowledge, even though the significance of tacit, non-propositional knowledge has long been recognized in philosophy (e.g. Polanyi, 1958). The increased attention being accorded to teacher thinking (Halkes & Olson, 1984; Clark & Peterson, 1986) suggests that it might be fruitful for curriculum theorists to attend to how teachers themselves think about the curriculum and its components, particularly to how teachers "construct" curriculum content as they engage in professional practice. Conceivably, curriculum theory may be unable to provide usable accounts of "curriculum-in-use" unless some heed is taken of this aspect of practical professional knowledge and may become impractically distant from classroom realities.

Schön's (1983) study of the nature of practical knowledge is the starting point for this paper's invitation. His argument is erected on the rejection of what he calls "technical rationality" as a way of thinking about how professionals solve practical problems. Technical rationality, he shows, obscures a crucial aspect of professional thinking: problem setting.

> When we set the problem, we select what we will treat as the "things" of the situation, we set the boundaries of our attention to it, and we impose on it a coherence which allows us to say what is wrong and in what directions the situation needs to be changed. Problem setting is a process in which, interactively, we *name* the things to which we will attend and *frame* the context in which we will attend to them. (p. 40)

The argument of this paper is that the ways teachers have named and framed issues about curriculum content are important. It will be shown that this form of the curriculum knowledge of teachers is quite different from our more comfortable ideas about the propositional nature of a teacher's knowledge of subject matter.

The focus in this paper is upon metaphor, and the paper begins with a review of recent explorations into metaphor and curriculum. It is shown that this work can be extended by examining the metaphorical language that teachers use in talking about their work. Here several examples are given, all to show that the metaphorical language provides us with

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2 BITNET address: Munbyh @ QUCDN

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intriguing insights into how the teachers concerned have named and framed issues about curriculum content. Accordingly, it is assumed that the metaphors represent something of teachers' practical curriculum knowledge.

Metaphors at the Level of Curriculum Theory

I don't need to belabor the point that curriculum theorists have been concerned with metaphors for some time. Kliebard's (1972) analysis of three major metaphors in curriculum (production, growth, and journey) is a case in point. A more recent and more comprehensive case (or cases) can be found in *Metaphors of Education*, edited by Taylor (1984). In the several chapters of this book, authors draw attention to how metaphors give rise to whole theoretical systems for thinking and speaking about educational matters. Taylor introduces the book with a discussion on the function of metaphor, suggesting that this sort of language "works by means of transference from one kind of reality to another" (p.8). The metaphor of "quality control" is singled out for special attention; and Taylor shows how this figure is linked to "accountability" and to the market view of consumerism, with its consequent interest in such concepts as performance contracting.

In the same volume, Aspin (1984) considers several theories of metaphor before arriving at the need to give an account of "the role and function of metaphor in educational discourse." He argues that:

> metaphorical locution is a kind of "persuasive definition": it is a particular kind of "speech act" which comes off, or fails to come off, in proportion to the hearer's understanding of and familiarity with the kinds of meaning defined by the demands of the context in which the utterance is issued....That is why metaphor is similar to lying in perlocutionary effect: it is what it prompts us to think, see or imagine that is important, what it promotes and evokes in us by the particular concatenation of unusual terms of which it is constituted. It provokes an "arrest," which, the speaker hopes, will precipitate a *disclosure*. (p. 33)

Aspin acknowledges that some "metaphors in education have become so widely employed, of course, that they have slowly lost all power to act in this way" (p. 33). Yet, this fate does not detract from the initial "*innovative* and creative power" (p. 34) of novel metaphorical expression.

A similar range of educational or curriculum metaphors gets examined in the chapter by Lawton (1984). For me, his major contribution is to examine two current metaphors: the "objective" metaphor that we have come to associate with a technological approach to curriculum thinking, and the "cultural reproduction" metaphor. I do not intend to enter Lawton's arguments, but to point instead to a matter that Lawton raises early in his chapter. This, I will show, becomes my springboard for the remainder of my paper. Lawton entertains classifying curricular metaphors, offering as examples curriculum as a building operation, as food, as a plant, as a product, as a commodity. He suspects, however, that this approach would not be very illuminating, and concludes:

> It might have been interesting to see what kind of teachers use what kind of metaphors. There might be significant differences in teaching style and practice? *(sic)*
>
> I rejected that approach for two reasons: first, it would require a good deal of empirical research which I do not think anyone has yet attempted, and for which I

> certainly did not have time to try. Second, because I suspect--for reasons which Professor Aspin outlined--that in most cases there would be no correlation between use of metaphor and classroom practice. Many of the metaphors are so deeply embedded (like the word curriculum itself) in educational language, or even in everyday speech, that they are used automatically rather than consciously. But there may be some important exceptions to that, as I will explain later. (p. 80)

The metaphors excepted from this are of three types: those that are used in classrooms because they may help to explain; those curriculum metaphors that are "dangerously wrong" (like the objectives metaphor); and those, like cultural reproduction, that are ideological. These exceptions, though, are not significant to the point I want to make of Lawton's grounds for declining to engage in empirical research. My point is that it is a mistake to set empirical work of this sort aside, because it limits the possibility for seeing something of the potential of teacher's thinking for influencing curriculum. This last sentence covers a considerable amount of territory, and it is the purpose of the next few sections of this paper to explore it. We begin by suggesting that Lawton makes too great a jump from metaphorical depictions of curriculum to classroom teaching and, in so doing, appears to have conceived "curriculum" too narrowly. Later, I will show how metaphorical expressions by teachers may well reveal substantial beliefs about curriculum, and how these can be viewed as an important part of professional thinking.

Different Types of Curriculum

Lawton's view that a good deal of research would be required to uncover empirical relationships between metaphorical conceptions of education and classroom practice is quite correct. Clandinin's (1985) case study involved considerable effort to uncover the foundational image that appears responsible for one teacher's professional work. But that's not our concern here. Our concern is more with Lawton's implicit assumption that overarching views of the nature of education lead in some logical fashion to what teachers do in classrooms. I react to this view for two reasons. First, it contains an inadequate conception of "curriculum"; and second, it suggests that views of education are more important than other views in influencing professional action.

A long tradition in curriculum history is the view that somehow classroom events are derived from instructional objectives which, in turn, come from educational goals and aims. This is what Schubert (1986) refers to as "The Dominant Curriculum Paradigm," institutionalized by Tyler's categories. A recent variation on this theme is the "objectives metaphor" that Lawton himself inveighs against. An alternative and more satisfying view of curriculum acknowledges the centrality of what teachers bring to their classrooms by pointing to quite different kinds of curriculum. I forget its source, but I was struck by the simplicity and moment of the distinction between the "paper curriculum" and the "curriculum-in-use." What gets transmitted to teachers as curriculum policy and even texts becomes "modulated" (Roberts, 1980) and possibly transformed by the teacher's various understandings. If we add the "learned curriculum" to the other two kinds of curriculum, we can begin to understand why several students of curriculum have become very interested in classroom discourse, teachers' cognitions (to use a broad phrase), and what children understand. In the early 1970's a group of us became intrigued about the messages about the nature of science conveyed to children by texts and teaching (e.g. Munby, 1976); more recently, we have been puzzled by issues surrounding how we might understand teachers' professional knowledge; and others have made significant headway in investigating children's understanding of scientific concepts (Driver, 1981). All of this work is curriculum work, though it is hard to see it that way if our

perspective on curriculum is fettered by the dominant curriculum paradigm. In a sense, Clark (1986) expresses a similar view when he admits of initial surprise at finding "curricularists" interested in his psychological studies on teacher planning. Surprise was displaced by his realization that planning can be viewed "as a link between thought and action that, in many respects, defines and sometimes distorts the content to be taught" (p. 11).

Clark's insight is worth attending to: teachers have the position and capacity to define and sometimes distort. This statement reflects a very different view of the professional's place from that depicted in the traditional paradigm's account of the relentless and uninterrupted movement from goals to instruction. The significance of this view, though, has been missed by Lawton, it seems. Just as the potential for exploring ways to understand how content might be defined (and distorted) has been deliberately set aside because it necessitates lengthy empirical research. Below, the challenge is taken up.

Metaphor as a Methodology

The challenge "How can we understand the ways in which teachers define curriculum?" is taken up by assuming first that it is very difficult to gather information about an individuals' thinking without seriously perturbing it. Indeed, the disturbance may be so great that we are incapable of accurately ascribing the results of our intervention: the thinking may have been present or absent before we intervened, and all we can say it is the thinking we have documented occurred *when* we intervened. This affliction accompanies all cognitive research, and the methodology presented here is not advanced as a solution to the problem; yet, the approach holds promise for ameliorating it somewhat.

The present approach is fastened to the idea that how teachers define or construct elements of their professional realities is highly significant to understanding professional action. It is assumed that a professional's view of his or her reality is pivotal to action within it, just as it is assumed that his or her construction is uniquely important. Attempts to understand this facet of teachers' professional thinking are many although research in the area is relatively young--the seminal collection by Halkes and Olson (1984) illustrates the range of approaches taken. The approach taken below is guided by the assumption that one of the more valid ways to understand professional construction comes from attending carefully to the professional's language as he or she speaks about professional work. Not only is what is said taken seriously, and as much as possible without imposing upon it the researcher's own interpretive system, but also special note is taken of the language selected by the professional. Importantly, it is assumed that the choice of this language is not accidental, but represents something of the professional's thinking. In this study, the emphasis is upon the metaphors occurring in such language.

Recent work in metaphor has shown the power of metaphorical language in our attempts to think about or construct our worlds of action. That metaphor is not just a linguistic entity but a process by which we encounter the world is argued by Schön (1979), Reddy (1979), and Lakoff and Johnson (1978). Schön, for example, argues that metaphors are generative, that they are "central to the task of accounting for our perspectives on the world: how we think about things, make sense of reality, and set the problems we later try to solve"(1979, p. 254). Reddy applies Schön's notion to discourse, arguing that the metaphors we use to talk about human communication encourage us to think of it as a conduit. Metaphors such as "Your concepts *come across* well" and "He *put* his ideas *into* words" portray communication as a simple matter of transferring thoughts and feelings (p.287). Lakoff and Johnson extend this view of the influence of metaphor, arguing that human thought processes are largely

metaphorical and that "the human conceptual system is metaphorically structured and defined. Metaphors as linguistic expressions are possible precisely because there are metaphors in a person's conceptual system" (1980, p.6).

Metaphor has been used as a theoretical and analytical device in the continuing work of the present author (Munby, 1986a). This work is driven by two research assumptions. First, it is assumed that the metaphors used by teachers when they talk about their work represent something of the way that they construct their professional realities. Second, it is assumed that the presence of the same metaphors in interviews conducted over a period of several months gives assurance that the language is common for the teacher in question and is not an artifact of the interviews themselves. In light of these assumptions, the questions asked in the interviews become relatively unimportant. In the most recent study (Munby, 1986b), for example, teachers were interviewed eight times over a period of four months. Each interview was directed toward a specific topic, such as the students in the class, a typical day, and teaching approaches; the questions were essentially unplanned save to encourage the teacher to speak and to elaborate: "Have you seen a change in them since the class started?" "What do you mean by clean-up day?" "So would that be a typical morning?"

The quantity of data for each teacher studied varies from a maximum of about 15,000 lines in early work to a minimum of about 4,000 lines in later work. All interviews were transcribed verbatim on the IBM 3081-G academic mainframe at Queen's University, so that the versatility of the system for editing and manipulating files could be exploited when handling the large amounts of data. The data sets for each teacher were handled similarly. A few interview scripts were read carefully and a list was made of the metaphorical terms that occurred frequently. Then, using a procedure called USEARCH (Munby & Whitehead, 1985), the entire data set for the teacher was searched for instances of metaphors on the list. The output from USEARCH, which contains instances of the terms and three lines of context, was edited and then studied. The process was repeated as new metaphors were found. The examples provided below represent samples and not the total output from USEARCH.

Practical Definitions of the Curriculum

Clark's (1986) statement that teachers might define and sometimes distort content is strikingly similar to Schön's (1983) ideas of naming and framing, and offers a convenient starting point for discussing some selected examples of metaphors. The studies of teachers' metaphors have revealed a varied assortment of metaphors that represent commonplaces like lessons, mind, attention, management, time, and so forth (Munby, 1986a). Not all of these are of interest to curriculum theorists. But the idea of defining and distorting draws attention to the particular metaphorical figures that appear germane to curriculum issues. In addition, the instances presented below seem to justify the empirical research, Lawton's view notwithstanding.

"Information and Ideas" for Alice and Bryn

Among the many types of metaphors identified by Lakoff and Johnson (1980) are ontological metaphors. When we speak of such classroom commonplaces as lessons, attention, and grades as if they were objects or commodities, we are invoking ontological metaphors. In several cases studied, teachers have referred to information and ideas as commodities. In these cases, the ontological metaphor is precisely similar to what Reddy (1979) identifies as the conduit metaphor. Uses of this metaphor not only depict information as a commodity but also imply that public communication works by transferring this commodity from one person to another,

possibly in or along some conduit. Selected examples from the speech of two teachers are illustrative.

In Alice's speech, information is broken down, got out, given, missed, picked up, needed, kept, thrown in, and touched on, whether the talk is about facts, directions, answers, commas, clauses, feedback, or the order of a football play. Specific examples are: "Break down the information," "get immediate feedback," "get it out more clear *(sic)* to the kids," "picking up the information," "throwing in a fact," and "I'll give him a serious answer". And, we get a similar view of communication in Alice's use of terms representing "ideas": "I give them an idea," and "I'm having a hard time putting it into words." The conduit metaphor is equally evident in Bryn's speech: "I didn't catch what he said," "it just comes out that way," "get their information," "I give them my opinion," "they took it as it came," "he expresses his thoughts," and "I've lost the thought that I had."

Some curriculum theorists might be concerned that the conduit metaphor's inherent representation of communication improperly portrays how we come to understand one another's meaning. Yet, it is not unjustified to suggest that the language that Alice and Bryn use to define or name aspects of curriculum content must hold some significance for how they construct professional reality.

Ede and "Covering Content"

In previous work (Munby, 1986a) I have explored how some of the metaphors used by Alice and Bryn represent lessons as moving objects that, among other things, cover ground. A rather different version of this is evident in some of Ede's language. Ede, a teacher of Texas History in grade seven, talks of curriculum content as something that is covered: "A chapter that he's already covered," "I needed to cover latitude and longitude and compass rose and things like that early in the school year," "I try to cover a lesson in five different ways and this helps everybody," "(The curriculum objectives were a) sequence of what we expect to cover in that year's time," and "I felt that I didn't need to take any more time than just giving answers, because we'd gone over that yesterday."

Two rather longer examples suggest how Ede's thinking about curriculum content is influenced by external factors:

> At the beginning of the school year, the assistant principal told all of the people that she was going to evaluate that these needed to be written down in their plan books. In other words, when we turn in lesson plans each week, those objectives need to be in there. (Interviewer: From the curriculum guide?) From the guide, right. And just saying that has helped me. That means I have to go back and look in that curriculum guide and decide which objective I'm working on. And it has helped me. Just that emphasis. (Interviewer: How does that help you?) Well, knowing that, y'know, this is the objective that I have down that I'm supposed to cover.

> I follow the sequence of (the text). But every year I have the Spanish here less and less (laughs). I mean by that there's about six chapters in that textbook that deal with the Spanish in Texas, and it seems that we never get through all that. So I've sort of looked at that and I've decided: "Now what do they need to know about the Spanish in Texas?" Every year I tend to cut the text down a little bit more on that. And my objective is to spend more time with modern Texas. Now, this year we got...through the discovery of oil, which is about 1901, and then I just covered modern Texas through a couple of filmstrips.

Evidently, "covering" the prescribed content is a major preoccupation for Ede. Possibly her defining or naming of the curriculum in this way reflects the influence of her administration. This appears to present something of a dilemma for her, because the following suggests that she might prefer to define curriculum differently were it not for the pressure from without.

> I remember a World History class that I did about five years ago, and uh, there, you're so intent on covering *so* much material....which, probably, is a mistake too. I think students learn more in doing activities, it's putting knowledge to work is what it is. And that's when it really becomes part of them. But you get caught in that thing--you don't have time to do that. Because you are so tied to a curriculum. You may not have to cover that whole book, but you've got to cover, uh, the main facts in that thing.

This glance at Ede's language suggests that the metaphor of content coverage is deliberately invoked as a way to define or frame the curriculum. But, her "content coverage" definition conflicts with her alternate definition, which frames curriculum with attention to how she thinks students best learn: by "doing activities...putting knowledge to work." Put simply, Ede defines curriculum as something to be covered while admitting that students learn better by using knowledge than they do by having it covered for them. Ede's case is interesting for how it illustrates the significance of the teacher's definition or definitions. Also, the case seems to point rather directly at the inadequacy of representing the curriculum as just "the paper curriculum."

Chad and "Learning is an Obstacle"

The thirteen interviews with Chad (totalling 7,382 lines) differ in interesting ways from the data of others. The data sets of Alice, Bryn and Ede do not contain very much talk about the details of subject matter and of learning subject matter. Chad's interviews, though, contain enough talk about his subject, mathematics, that it is possible to develop a tentative perspective on the underlying metaphorical figures that seem to account for Chad's view of his subject and his students' learning of it.

Chad frequently uses an orientational metaphor to refer to ability of the students and to the difficulty of the subject matter: the more able students are "higher" and the less "lower" just as the more difficult material tends to be "up," and the less "down." Typical fragments are: "they're not up to (advanced geometry)," "those kids are very low," "we have some of the top students...in this class," "this lower group down here," "(the lesson) is above their head(s)," and "I felt the thing was completely over their head(s)." This orientation for thinking about achieving in mathematics is central because it provides a special sense of having to work hard at something, rather as one has to work hard to overcome gravity. The sense is that achievement in mathematics is accessed by overcoming something, and the language is rather suggestive of the notion that what is to be overcome or conquered is an obstacle. Indeed, learning mathematics becomes the obstacle. Some associations are familiar: "they ran into some problems," "they dread coming to (math)," "I try to calm the *(sic)* and...dispel the fear...(of) algebra," "a kid that's struggling (with learning)."

From the perspective of the curriculum-in-use, this way of depicting Chad's conception of his curriculum makes more sense for the coherence it lends to understanding the language he uses to talk about the work that he presents in class. Attacking and overcoming the obstacle requires an appropriate set of tools and the skills to manipulate them. "You have to show...(them) how to find the least common denominator," "show them how to find the square root," "you'll have to...break the problem down," "that's the best way...to approach that," and

"the slow kids didn't get (the skill) the first time," are all examples. The tools themselves are interesting. They appear to be formulas and procedures that are "built" on theories; and formulas and procedures themselves have steps that one goes through: "we tried to build on the theory," "we've been dealing with formulas," "they could arrive at the products in a short method," "I told him what to do to continue," "we're going at this step," "how well you follow those procedures and...steps." There are occasional hints at what it means to face the obstacle, as in "he was real *(sic)* nervous and I was trying to help him along." And many times the emphasis is upon following the steps needed to acquire the necessary skills, as in "they don't want to follow instructions," "they'd begun to get on track of what they gonna have to do," and sometimes "he was totally lost."

Success at overcoming the obstacle or mastering the steps for a solution, occasionally requires more than the appropriate tools, it can also require encouragement: "you'd have to drag the solution out of her," "these other is gonna *(sic)* hold back (their solution)." And, even mastered, the skills may not be held, as in "a lot of 'em aren't going to retain all of it."

The figure "Learning is an Obstacle" appears to capture a good deal of Chad's language and becomes very suggestive of the way in which Chad conceives of the curriculum and what is required of students in their learning. Certainly, the dominant view of curriculum content is of problems whose solution requires the mastery of steps. This is to be taken as Chad's naming or defining the mathematics curriculum.

Mike and the Curriculum as "Steps"

Mike teaches mathematics and computing in a penitentiary school. His program is established to accommodate the "continuous intake" policy of the Penitentiary Service of Canada, a policy requiring the school's programs (at all grade levels) to be accessible to any inmate at the beginning of any sentence. Mike's courses also need to satisfy the curriculum guidelines promulgated by the Ontario Ministry of Education. He achieves this by sequencing his courses in small steps so that instruction may be individualized. Mike's translation of the paper curriculum into curriculum-in-use within demanding institutional constraints is evident in the metaphor of "steps," for this is the way he has defined his curriculum. The following illustrative example of Mike's speech is compiled of several extracts from his interviews, with extracts separated by ellipses.

> When I start them off on (computer programming) I have to run through basics with them...They go through those demonstration programs...We work through how to use the computer, how to use a disk, how to get a program started...Sometimes I will have to work them right through the long-handed method (of programming)...The best thing (is to) work through the course. Just grab the materials and try some of it out...I show the student how to get started...In grade eleven we get into more complex things...He is going very, very far in computers...He has really progressed quickly (in computers).

These fragments about the computer course, its components, and progress in it suggest that Mike views the course as a sequence of steps, each requiring mastery before the next is attempted. The sequence has a start but no end, except as determined by its divisions into grade levels, and students progress through the sequence by working at the steps and gaining the skills progressively. This image of a course being a series of progressive but discrete skills is also recognizable in the language used to describe the mathematics courses:

> People do math in big chunks...If they are having trouble, I will advise them to try the basic level...I always say, "Go on to the next bunch of questions"...If they do want to get ahead, they can because there still is that structure of the course.

This overall definition of the curriculum seems to be important to the way that Mike constructs his views of the students. Much of the discourse describing the students is in terms of varying degrees of progress along the sequence. The connection between Mike's views of the courses and of the students is evident in the language he uses when discussing student motivation and satisfaction, and particularly in the way he sees mastering steps as contributing substantially to the self-confidence of his students.

> They feel that they can do something worthwhile, they can gain some skills and, use those skills--get a better image of themselves...I can't say that it is love of knowledge (that) has caused these people to enthusiastically participate in school...Part of the idea of learning for some of them, (is) it looks good to have grade twelve...In the (computer) class, there is a rub off in terms of enthusiasm and curiosity and it is nice to watch the excitement that goes on...Students tend to respect a little bit of a challenge to satisfy their talent...There is a lot of pride because they didn't do well in school before...They now realize that...it can be done.

The following demonstrates Mike's understanding of a relationship between self-confidence and the distinctive sense of control that can come from learning to work with computers.

> They can get a better feel for the machine and (for) being in control of the machine and having power over the machine; it is something that they can control...It gives them a bit of a sense of gaining control of the machine; you can manipulate it, you are the conductor of the computer...(The computer students) usually find (their) interest takes off with them...They have that curiosity (with computer programming)...Enthusiasm is high with the computers...Students work harder and longer on the computer than over a math problem...It is important that they gain confidence using the computer and it is a confidence builder...The programming seems to work for them in building up confidence...It really is important that their confidence be boosted with the machine.

It is not hard to see that Mike's curriculum becomes defined in practice in terms of steps not just to accommodate continuous intake but also to enable him to meet his view that the students need to develop confidence in learning and in themselves. Mike's case is a fine example of how the conditions of practice force a change in the official definition of the curriculum. What emerges is curriculum content defined as steps--a metaphor that appears to be very powerful for the way it allows Mike to speak of his courses and his students.

Discussion and Conclusion

The purpose of this paper has been to invite consideration of an alternative way of thinking about curriculum theory. The paper has drawn attention to the difference between "curriculum-in-theory," and "curriculum-in-use," and has argued that the way in which teachers construe or define curriculum in relation to their practice is a significant phenomenon for curriculum theorists to address. This part of professional knowledge, or knowledge-in-action (Schön, 1983) is not readily accessible, but the paper has offered examples from recent studies to show the profit of investigating the metaphorical language teachers use when speaking about their work.

The examples themselves are various for what they reveal: we have seen metaphors about communication, about content as something covered, and about curriculum as a sequence of steps. Interestingly, these representations coincide markedly with the representations discussed by Doyle (1986, pp. 374-376). Doyle's concern is with meaning; that is, although he sees evidence that students understand the meaning of the academic tasks that are to be accomplished, it is not so clear that they understand or are even required to understand the meanings residing in the material constituting the tasks. Doyle uses two examples. One is a course based on skills, and his description immediately brings to mind the metaphor of steps discussed above. He concludes: "In sum, the maths curriculum in this class appeared as a set of somewhat discrete skills that needed to be practiced and mastered independently, and the emphasis was on computation rather than on maths concepts" (p. 375). In the second example, attention to meaning is excluded when writing assignments are given a procedural interpretation, so that "the class did not discuss and was not held accountable for a common body of knowledge" (p. 377). I find a compelling similarity between this description and the definition (or theory) of curriculum represented by the conduit metaphor and the metaphor of covering content, as seen in the illustrative data discussed previously. This coincidence is surely worth investigating further if meaning is significant to curriculum theorists. Also, the coincidence underscores the importance of noting the gap between curriculum theory as conventionally represented, and what emerges when teachers define, name, or distort curriculum when confronted by practice. Evidently, practical knowledge has considerable scope as a source of novel manifestations of curriculum theory.

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